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Inflection-Point B-L Higgs Inflation

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Inflection-point inflation is a unique possibility to realize a successful slow-roll inflation when inflation is driven by a single scalar field with an initial value below the Planck mass. In order for a re-normalization group (RG) improved effective $\lambda(\phi)\phi^4$ potential to develop an inflection point, the self-coupling $\lambda(\phi)$ must exhibit a minimum with an almost vanishing value, $\lambda_{\min} \simeq 0$, in its RG evolution.

We investigate a possibility of realizing the inflection-point inflation driven by the B-L Higgs field in the minimal gauged B-L extended Standard Model (SM) at the TeV scale. For a realistic inflection-point inflation, the mass ratios among the Z' gauge boson, the right-handed neutrinos and the B-L Higgs boson are fixed, which can be tested in the future collider experiments.

Summary

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